Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for testing a semiconductor device, the method comprising:

measuring for a first semiconductor device a first current at a first voltage and a second current at a second voltage;

identifying a ~~the~~ functional relationship between the first and second currents; and

comparing the functional relationship to a predetermined relationship to determine whether the device is defective, <u>wherein the predetermined relationship is determined by at least one of evaluating the functional relationship for at least one other die on the same wafer or is determined from a plurality of dies fabricated previously.</u>

Claim 2 (original): The method as recited in claim 1 wherein the functional relationship is a ratio between the first and second currents.

Claim 3 (original): The method as recited in claim 1 wherein the first semiconductor device is a transistor.

Claim 4 (original): The method as recited in claim 1 wherein the first semiconductor device is an integrated circuit.

Claim 5 (original): The method as recited in claim 1 wherein the predetermined relationship is determined by evaluating the functional relationship for at least one other die on the same wafer.

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Claim 6 (original):   The method as recited in claim 1 wherein the predetermined relationship is determined from a plurality of dies fabricated previously.

Claim 7 (original):   The method as recited in claim 1 further comprising measuring a third current at a third voltage and wherein identifying the functional relationship comprises identifying the functional relationships between the first, second, and third currents.

Claim 8 (original):   The method as recited in claim 1 wherein the first and second currents are quiescent currents.

Claim 9 (original):   The method as recited in claim 1 wherein the device is determined to be defective if it deviates from the predetermined relationship by a predetermined threshold.

Claim 10 (original):   The method as recited in claim 9 wherein the functional relationship is a ratio of the first and second currents and the predetermined threshold is about 20 % of the value determined for the ratio.

Claim 11 (original):   The method as recited in claim 1 wherein the first and second voltages are set within the range from 50 to 140 % of a nominal supply voltage for the device.

Claim 12 (original):   The method as recited in claim 1 wherein the first and second voltages are set within the range from 60 to 120 % of a nominal supply voltage for the device.

Claim 13 (original):   The method as recited in claim 1 wherein the first and second voltages are supplied by automated test equipment.

Claim 14 (original):   The method as recited in claim 1 wherein the first and second currents are measured by automated test equipment.

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Claim 15 (original): The method as recited in claim 1 wherein the predetermined relationship comprises a running average of the functional relationship for the devices previously tested.

Claim 16 (currently amended): A method for testing a semiconductor die, the method comprising:

measuring for the semiconductor die at least two quiescent currents, the first current of the two quiescent currents measured when a first supply voltage is applied to a supply terminal of the die and the second current measured when a second supply voltage is applied to the supply terminal of the die **wherein the first and second voltages are set within the range from 50 to 140 % of a nominal supply voltage for the device**;

determining a measured ratio between the first and second currents;

comparing the measured ratio with an expected ratio for quiescent currents; and

determining if the die is defective when the measured ratio differs from the expected ratio by a predetermined threshold.

Claim 17 (original): The method as recited in claim 16 wherein the first and second voltages are supplied by automated test equipment

Claim 18 (cancelled).

Claim 19 (original): The method as recited in claim 16 further comprising measuring a third quiescent current at a third voltage and determining a measured ratio between the first and third currents, and the second and third currents;

comparing the measured ratios for the first and third currents and second and third currents with corresponding expected ratios for quiescent currents; and

determining if the die is defective when any of the measured ratios differs from the corresponding expected ratios by a predetermined threshold.

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Claim 20 (new): A method for testing a semiconductor device, the method comprising:

measuring for a first semiconductor device a first current at a first voltage and a second current at a second voltage;

identifying a functional relationship between the first and second currents; and

comparing the functional relationship to a predetermined reference to determine whether the device is defective.

Claim 21 (new): The method of Claim 20 wherein the predetermined reference comprises an expected functional relationship between said first and second currents as determined by at least one of: a measurement of a prototype chip or characterization of a history of similar chips already fabricated.

Claim 22 (new): The method of Claim 20 wherein the predetermined reference is related to an ohmic linear relationship defined by the ratio of a first current at high V_{dd} and a second current at low V_{dd}.

Claim 23 (new): The method of Claim 20 wherein the functional relationship comprises a exponential relationship between the first and second currents.

Claim 24 (new): A method for testing a semiconductor device, the method comprising:

measuring for a first semiconductor device a first current at a first voltage and a second current at a second voltage;

identifying a functional relationship between the first and second currents; and comparing the functional relationship to a predetermined relationship comprising a running average of the functional relationship for the devices previously tested to determine whether the device is defective.

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